Third United Nations International Conference on the Peaceful Uses of Atomic Energy

A/CONF.28/A/48
FRANCE
February 1964
Original: FRENCH

Confidential until official release during Conference

Abstract

THE REACTOR PEGASE

by R. DAUTRAY - Direction des Piles Atomiques ; CEA
A. DEVILLE - Département des Piles Expérimentales ; CEA
P. FAUROT - Département des Constructions des Piles ; CEA
J. LACOUR - Département des Etudes de Piles ; CEA
B. LEROUGE - Département des Piles Expérimentales ; CEA
V. RAIEVSKI - CEA during the Pegasus project ; at present Euratom.

(Commissariat à l'Energie Atomique, France)

The reactor Pégase is designed for testing fuel elements for gas-cooled power reactors. Experience has shown that the classical multi-purpose test reactors are not well adapted to these tests. On another side, the introduction of these test elements into the existing power reactors involves numerous problems, which limits their interest.

Pégase, which is designed to satisfy these experimental needs, is composed of a parallelepipediccore of enriched Uranium, moderated and cooled by pressurized water. This core is used as a neutron source for eight autonomous loops, containing the elements to be tested, and situated around the core. The core and the eight loops are immersed in a irradiation pool. The loops are placed on the bottom of the pool so, it is possible to move a loop away from the core, or to remove it from the pool without interfering with the operation of the other loops.

The irradiation conditions are adjusted, moking the synthesis of the following development works.

Translation provided by courtesy of the submitting Government

- Experimental studies on Peggy, a zero power critical, facilites, mock up of Pégase in operation since 1961 : measurements of neutron flux level, radial and axial fly distributions on the experiments. Effect of burnable poisons and of movements of the control rods ; adjustement of devices (reflectors, screens etc ..) needed for optimum performances.

- Experimental work on two prototypes autonomes loops, heated electrically to the nominal operating power (in operation since 1961) : development of the thermodynamic measurements, thermal balances parameters for control of the operating conditions, natural convection.

- Studies on Pégase operating under power ; thermodynamic measurements on the core circuits on the independant loop circuits ; neutronic measurements, etc ...

The reactor Pégase went critical on the 4th of April 1963 and reached the nominal power of 30 kW on the 28th of May 1963.